



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/729,472	12/05/2003	Roger L. Hipwell JR.	I69.12-0601	1298

164 7590 09/27/2006

KINNEY & LANGE, P.A.  
THE KINNEY & LANGE BUILDING  
312 SOUTH THIRD STREET  
MINNEAPOLIS, MN 55415-1002

EXAMINER

RENNER, CRAIG A

ART UNIT PAPER NUMBER

2627

DATE MAILED: 09/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/729,472

Applicant(s)

HIPWELL ET AL

Examiner

Craig A. Renner

Art Unit

2627

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 July 2006.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-35 is/are pending in the application.  
4a) Of the above claim(s) 2,3,6,7,15,27,28 and 32 is/are withdrawn from consideration.  
5) ☒ Claim(s) 26-31 and 33-35 is/are allowed.  
6) ☒ Claim(s) 1,4,5,11-14,16-18,20-25 and 32 is/are rejected.  
7) ☒ Claim(s) 8-10 and 19 is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 05 December 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 05 December 2003.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Election/Restrictions*

1. Applicant's election without traverse of "Species IV (FIGS. 2-3 and 22-36)," upon which "Claims 1, 4, 5, 8-13, 16-26, 29-31, and 33-35" are said to "encompass", in the reply filed on 28 July 2006 is acknowledged. Additionally, claim 14 is "generic to all five Species" and therefore also encompasses the elected species. Accordingly, claims 2, 3, 6, 7, 15, 27, 28 and 32 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to one or more non-elected inventions/species, there being no allowable generic or linking claim.

2. Upon further consideration, it was determined that claim 26 is generic and allowable over the prior art of record. Accordingly, the restriction requirement between species set forth in the Office action mailed on 06 July 2006 has been reconsidered in view of the allowability of claims to the elected invention pursuant to MPEP § 821.04(a). **The restriction requirement is hereby withdrawn as to any claim that requires all the limitations of an allowable claim.** Claims 27, 28 and 32, directed to one or more non-elected species, are no longer withdrawn from consideration because these claims require all the limitations of an allowable claim. However, claims 2, 3, 6, 7 and 15, directed to one or more non-elected species, remain withdrawn from consideration because they do not require all the limitations of an allowable claim.

In view of the above noted withdrawal of the restriction requirement, applicant is advised that if any claim presented in a continuation or divisional application is anticipated by, or includes all the limitations of, a claim that is allowable in the present application, such claim may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application.

Once a restriction requirement is withdrawn, the provisions of 35 U.S.C. 121 are no longer applicable. See *In re Ziegler*, 443 F.2d 1211, 1215, 170 USPQ 129, 131-32 (CCPA 1971). See also MPEP § 804.01.

### ***Oath/Declaration***

3. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because non-initialed and/or non-dated alterations have been made to the oath or declaration. See 37 CFR 1.52(c). Note, for instance, the residence and mailing address of Jeremy A. Thorn.

### ***Drawings***

4. The drawings are objected to because of the following informalities:

a. The drawings fail to comply with 37 CFR 1.84(p)(5) because they do not include one or more reference signs mentioned in the description. Note, for instance, "164" (disclosed as "openings" in line 2 on page 18, for instance).

b. In FIG. 4C, the upper-most reference numeral "69" and corresponding lead line should be deleted in order to be consistent with the description of this figure. Lines 8-10 on page 9 disclose that "FIG. 4C shows an electromagnetic microactuator with deposited coil structure 67 on rotor portion 36 and permanent magnet film 69 on stator portion 34."

Corrected drawing sheets in compliance with 37 CFR 1.121(d) and/or an amendment to the specification in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

5. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.
6. The abstract of the disclosure is objected to because it is not "within the range of 50 to 150 words", and because it does not avoid the "form and legal phraseology often

used in patent claims,” such as, “means” in lines 10 and 11 thereof. Appropriate correction is required. See MPEP § 608.01(b).

7. The disclosure is objected to because of the following informality:

In lines 1-2 of claim 35, “comprising an adhesion material connects” should be corrected to read --comprising an adhesion material connecting--. Appropriate correction is required.

8. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

***Claim Rejections - 35 USC § 112***

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claims 11 and 32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. In lines 1-2 of claim 11, “wherein the slider body is composed of aluminum titanium carbide” is indefinite as it is misdescriptive of the disclosure, which teaches that

slider body **34** is composed of alumina titanium carbide (emphasis added). See line 28 on page 16, for instance.

b. In lines 1-3 of claim 32, it is indefinite as to how the “top coat” can be “deposited upon ... a top surface of the cantilever beam” and still be “spaced apart from the top surface of the cantilever beam.” Furthermore, “wherein the top coat is spaced apart from the top surface of the cantilever beam” is indefinite as it is misdescriptive of the disclosure, which teaches/shows that top coat **220** is in contact with spring contact **224** of cantilever beam **152a** and is only spaced apart from a portion of a top surface of cantilever beam **152a**. See **FIG. 42**, for instance.

### ***Claim Rejections - 35 USC § 102***

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

12. Claims 1, 4-5, 12-14, 16-18, 20-23 and 25 are rejected under 35 U.S.C. 102(e) as being anticipated by Bonin et al. (US 6,683,757).

With respect to claims 1, 4-5 and 12-13, Bonin et al. (US 6,683,757) teaches a slider (40) comprising a slider body (44/80) having a leading edge and a trailing edge; a

Art Unit: 2627

transducer body (46/104) spaced from the trailing edge of the slider body (as shown in FIGS. 6 and 25, for instance), the transducer body including at least one transducer element (48/106); a flexure body (50/98 or 52/100) extending from the trailing edge of the slider body (as shown in FIGS. 6 and 25, for instance), the flexure body having a first anchor point connected to the slider body and second anchor point connected to the transducer body (as shown in FIGS. 6 and 25, for instance); a basecoat layer (82) deposited on the trailing edge of the slider body (as shown in FIGS. 8-20, for instance), the basecoat layer substantially surrounding the flexure body (as shown in FIGS. 17-20, for instance) and separated from the flexure body by a first gap (97a, 97b, 99a, or 99b as shown in FIGS. 17-20, for instance); a first actuation means (includes 54/86, for instance, in at least an equivalent structural sense) formed on the basecoat (as shown in FIGS. 11-20, for instance); and a second actuation means (includes 56/94, for instance, in at least an equivalent structural sense) formed on the transducer body adjacent the slider body (as shown in FIGS. 6 and 25, for instance) [as per claim 1]; wherein the flexure body is a folded beam (as shown in FIG. 6, for instance) [as per claim 4]; wherein the slider further comprises a second gap to space the folded beam structure from the slider body (as shown in FIG. 6, for instance) [as per claim 5]; wherein the flexure body is composed of metal (lines 21-22 in column 6, for instance, i.e., "silicon" is metal) [as per claim 12]; and wherein the basecoat layer is composed of alumina (lines 7-9 in column 8, for instance, i.e., "aluminum oxide" is alumina) [as per claim 13].



With respect to claims 14, 16-18, 20-23 and 25, Bonin et al. (US 6,683,757) teaches a slider (40) comprising a stator portion (44/80) having a leading edge and a trailing edge; a spring flexure (50/98 or 52/100) formed on the trailing edge of the stator portion (as shown in FIGS. 6 and 25, for instance), the spring flexure having a first end and a second end wherein the first end is attached to the stator portion (as shown in FIGS. 6 and 25, for instance); a basecoat (82) deposited on the trailing edge of the stator portion (as shown in FIGS. 8-20, for instance) and surrounding sides of the spring flexure (as shown in FIGS. 17-20, for instance) wherein a gap (97a, 97b, 99a, or 99b) is formed between the basecoat and the spring flexure (as shown in FIGS. 17-20, for instance); a rotor portion (46/104) connected to the second end of the spring flexure (as shown in FIGS. 6 and 25, for instance), the rotor portion carrying a transducing head (48/106); and an actuation mechanism (includes 54/86 and 56/94, for instance) for moving the rotor portion with respect to the stator portion (as shown in FIGS. 3-6, for instance) [as per claim 14]; wherein the spring flexure is a cantilever beam (as shown in FIGS. 6 and 25, for instance), and further wherein the rotor portion is attached to a portion of the second end of the cantilever beam (as shown in FIGS. 6 and 25, for instance) [as per claim 16]; wherein the cantilever beam is spaced from the basecoat and the stator portion by the gap (as shown in FIGS. 17-20, for instance) [as per claim 17]; wherein the second end of the cantilever beam is spaced from the stator portion by the gap (as shown in FIGS. 6 and 25, for instance) [as per claim 18]; wherein the spring flexure is on the stator portion (as shown in FIGS. 6 and 25, for instance) [as per claim 20]; wherein the actuation mechanism comprises a plurality of stator electrodes (54/86)

Art Unit: 2627

on the basecoat (as shown in FIGS. 11-20, for instance) and a plurality of rotor electrodes (56/94) on the rotor portion suspended between the stator electrodes (as shown in FIGS. 6 and 25, for instance) [as per claim 21]; wherein the slider further comprises a bond pad (96, for instance) extending from the trailing edge of the stator portion (as shown in FIGS. 17-20, for instance) [as per claim 22]; wherein an adhesion material (96, for instance) connects the rotor portion to the spring flexure (line 65 in column 8 thru line 2 in column 9, for instance) [as per claim 23]; and wherein the spring flexure is metal (lines 21-22 in column 6, for instance, i.e., "silicon" is metal) [as per claim 25]. As the claims are directed to a "slider", per se, the method limitation appearing in lines 1-2 of claim 20 can only be accorded weight to the extent that it affects the structure of the completed slider. Note that "[d]etermination of patentability in 'product-by-process' claims is based on product itself, even though such claims are limited and defined by process [i.e., "plated", for instance], and thus product in such claim is unpatentable if it is the same as, or obvious form, product of prior art, even if prior product was made by a different process", *In re Thorpe, et al.*, 227 USPQ 964 (CAFC 1985). Furthermore, note that a "[p]roduct-by-process claim, although reciting subject matter of claim in terms of how it is made [i.e., "plated", for instance], is still product claim; it is patentability of product claimed and not recited process steps that must be established, in spite of fact that claim may recite only process limitations", *In re Hirao and Sato*, 190 USPQ 685 (CCPA 1976).

Art Unit: 2627

13. Claims 14, 16-18, 20, 23 and 25 are rejected under 35 U.S.C. 102(e) as being anticipated by Bonin et al. (US 6,785,086).

Bonin et al. (US 6,785,086) teaches a slider (30/130) comprising a stator portion (40/140) having a leading edge and a trailing edge (36); a spring flexure (48/148) formed on the trailing edge of the stator portion (as shown in FIGS. 4 and 24, for instance), the spring flexure having a first end and a second end wherein the first end is attached to the stator portion (as shown in FIGS. 4 and 24, for instance); a basecoat (143) deposited on the trailing edge of the stator portion and surrounding sides of the spring flexure (as shown in FIG. 23, for instance) wherein a gap is formed between the basecoat and the spring flexure (as shown in FIG. 24, for instance); a rotor portion (42/142) connected to the second end of the spring flexure (as shown in FIGS. 4 and 24, for instance), the rotor portion carrying a transducing head (32/132); and an actuation mechanism (includes 50/150 and 52/152, for instance) for moving the rotor portion with respect to the stator portion (as shown in FIGS. 3 and 5-7, for instance) [as per claim 14]; wherein the spring flexure is a cantilever beam (as shown in FIGS. 4 and 24, for instance), and further wherein the rotor portion is attached to a portion of the second end of the cantilever beam (as shown in FIGS. 4 and 24, for instance) [as per claim 16]; wherein the cantilever beam is spaced from the basecoat and the stator portion by the gap (as shown in FIG. 24, for instance) [as per claim 17]; wherein the second end of the cantilever beam is spaced from the stator portion by the gap (as shown in FIG. 24, for instance) [as per claim 18]; wherein the spring flexure is on the stator portion (as shown in FIGS. 4 and 24, for instance) [as per claim 20]; wherein an

Art Unit: 2627

adhesion material connects the rotor portion to the spring flexure (lines 43-44 in column 8, for instance, i.e., "doped poly-silicon" is an adhesion material") [as per claim 23]; and wherein the spring flexure is metal (lines 40-41 in column 7, for instance, i.e., "tungsten" and "molybdenum" are each metal) [as per claim 25]. As the claims are directed to a "slider", per se, the method limitation appearing in lines 1-2 of claim 20 can only be accorded weight to the extent that it affects the structure of the completed slider. Note that "[d]etermination of patentability in 'product-by-process' claims is based on product itself, even though such claims are limited and defined by process [i.e., "plated", for instance], and thus product in such claim is unpatentable if it is the same as, or obvious form, product of prior art, even if prior product was made by a different process." See *In re Thorpe, et al.*, supra. Furthermore, note that a "[p]roduct-by-process claim, although reciting subject matter of claim in terms of how it is made [i.e., "plated", for instance], is still product claim; it is patentability of product claimed and not recited process steps that must be established, in spite of fact that claim may recite only process limitations." See *In re Hirao and Sato*, supra.

### ***Claim Rejections - 35 USC § 103***

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2627

15. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

16. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bonin et al. (US 6,683,757).

Bonin et al. (US 6,683,757) teaches the slider as detailed in paragraph 12, *supra*. Bonin et al. (US 6,683,757), however, remains silent as to the slider body being composed of "aluminum titanium carbide."

Official notice is taken of the fact that aluminum titanium carbide is a notoriously old and well known slider body material in the art. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have had the slider body of Bonin et al. (US 6,683,757) be composed of aluminum titanium carbide. The rationale is as follows:

One of ordinary skill in the art would have been motivated to have had the slider body of Bonin et al. (US 6,683,757) be composed of aluminum titanium carbide since such is a notoriously old and well known slider body material in the art, and since selecting a known material on the basis of its suitability for the intended use is within the level of ordinary skill in the art, *In re Leshin*, 125 USPQ 416 (CCPA 1960)..

Art Unit: 2627

17. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bonin et al. (US 6,785,086).

Bonin et al. (US 6,785,086) teaches the slider as detailed in paragraph 13, supra. Bonin et al. (US 6,785,086), however, remains silent as to “wherein the trailing edge of the stator portion is roughened to create an adhesive interface between the stator portion and the spring flexure.”

Official notice is taken of the fact that it is notoriously old and well known in the art to roughen surfaces in the same field of endeavor for the purpose of increasing adhesion strength. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have had the trailing edge of the stator portion of Bonin et al. (US 6,785,086) be roughened to create an adhesive interface between the stator portion and the spring flexure. The rationale is as follows:

One of ordinary skill in the art would have been motivated to have had the trailing edge of the stator portion of Bonin et al. (US 6,785,086) be roughened to create an adhesive interface between the stator portion and the spring flexure since such increases adhesion strength.

#### ***Pertinent Prior Art***

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. This includes Hipwell, Jr. et al. (US 6,697,232), which teaches a slider with a transducer-level electrostatic microactuator.

***Allowable Subject Matter***

19. Claims 26-31 and 33-35 are allowable over the prior art of record. Claim 32 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action. Claims 8-10 and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Craig A. Renner whose telephone number is (571) 272-7580. The examiner can normally be reached on Monday-Tuesday & Thursday-Friday 9:00 AM - 7:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T. Nguyen can be reached on (571) 272-7579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2627

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Craig A. Renner  
Primary Examiner  
Art Unit 2627

CAR